Megan R. Smith

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Education

Purdue University – West Lafayette, IN
Bachelor of Science in Mechanical Engineering

Skills: Rapid Prototyping, Additive Manufacturing, SolidWorks, Creo, Python, Dart, MATLAB, P&IDs

Work Experience

Rugged Robotics — **Houston, Texas**

Lead Mechanical Engineer — Sept. 2019 – Present

- Design, build, and test cutting edge robots with custom, high precision swerve drive propulsion mechanisms with slip rings
- Manage design, procurement, and manufacturing schedules to develop a reliable prototype in 3 months
- Develop Flutter app that can control the robot (using ROS) and stream data to a tablet

Lockheed Martin — **Houston, Texas**

Mechanical Engineer: Orion Docking Mechanisms — Jan. 2019 – Aug. 2019

- Designed mechanisms to be additively manufactured out of titanium, and assessed loads using simple FEA to quickly iterate
- Applied GD&T to drawings for manufacturing

Northrop Grumman Innovation Systems (formerly Orbital ATK) — **Sterling, Virginia**

Associate Mechanical Systems Engineer: Advanced Programs Group – CIRAS, NextSTEP-2, PPE, Antennas — July 2017 – Jan. 2019

- Create detailed CAD models of robotic tools to be used in future robotic assembly services in space
- Participate in trade studies consisting of multiple designs for the development of spacecraft mechanisms
- Perform engineering calculations and collaborate with analysis engineers to determine maximum allowable loads
- Additive manufacture, assemble, and test rapid prototypes of robotics and mechanisms to demonstrate functionality
- Utilize lessons learned from rapid prototypes to modify designs and transition to metal parts for ground mockups
- Manage hardware procurement including CNC machined parts, motors, gearboxes, fasteners, limit switches, etc.
- Check hardware for non-conformances and provide drawings to the machine shop for modifications
- Travel to NASA Langley Research Center to mate hardware and provide mechanical support for ground demonstrations
- Integrate ground demo hardware, write test procedures, and execute bench level tests to verify requirements
- Interact with systems engineers and program management to receive, follow-up, and close action items
- Produced conceptual designs for the NextSTEP-2 habitat and leading the 3D printing effort for the mockup at NASA JSC
- Iteratively designing the internal component layout for the Power and Propulsion Element (PPE) with input from subsystems
- Received training in a Mission Operations Center to deploy spacecraft antennas using coarse and fine gimbal adjustments

NextEra Energy — **Palo, Iowa**

Systems Engineering Intern: Duane Arnold Nuclear Plant — May 2016 – Aug. 2016

- Created a database of Emergency Operating Procedure components categorized under 10 CFR 50.65
- Assembled a fault tree and performed calculations to support a failure review

Eastman Chemical Company — **Kingsport, Tennessee**

Mechanical Engineering Co-Op: Materials, Vessels, and Piping Technology — May 2015 – Aug. 2015

- Created MATLAB scripts to calculate interior surface areas of large vessels and perform corrosion prediction calculations
- Modeled pressure vessels using COMPRESS ASME design software and found natural frequencies of oxidizer columns
- Developed a valve machining chart using ASME standards B16.5 and B16.10 to ensure compliance in the machine shop

Mechanical Engineering Co-Op: Plant Engineering — Aug. 2014 – Dec. 2014

- Designed fixtures for railcar stations to support a Six Sigma/Lean Manufacturing project to improve productivity and safety
- Created isometric drawings to modify process piping and extend a steam header in a cGMP (food grade) area
- Communicated with vendors to purchase a modified pressure gauge for installation on a tank

Chemical Engineering Co-Op: Process Improvement — Jan. 2014 – May 2014

- Completed percent yield calculations using JavaScript for a computer data display
- Performed a chemical process data analysis and wrote a technical report to share the results with colleagues
- Developed Piping and Instrumentation Diagrams (P&IDs) for fluid supplied throughout a multi-story building

Leadership

Training Coordinator, Northrop Grumman Innovation Systems Makerspace — Feb. 2018 – Jan. 2019

- Plan and lead training events to teach employees how to use 3D printers and other resources on campus

Director, Northrop Grumman EPIC Camaraderie and Networking — Dec. 2017 – Jan. 2019

- Organize and lead team building events and activities for Emerging Professionals Investing in Careers (EPIC)

Assistant Project Manager, Purdue University Hyperloop Team — June 2015 – May 2016

- Lead collaboration with Purdue professors to establish a team and course for the SpaceX Hyperloop Pod Competition
- Designed a passenger vehicle to perform in a near vacuum environment with a team of over 50 students and advisors

Achievements

Orbital ATK STAR Award, 2017
Walter Hesse Solar Energy Scholarship, 2016

Activities

USA Science & Engineering Festival, 2018
Loudoun Symphonic Winds, 2017